Amendments to the Specification

Paragraph at page 2, lines 17-35:

Each of the rings 28 is typically controlled fairly tightly. A ring network which uses optical fiber for the transmission medium may employ wavelength division multiplexing (WDM), in which a single fiber conveys multiple optical carriers impressed with different data signals. In a WDM environment, packets between different pairs of terminals 34 on the same ring 28 may be identified and switched according to optical wavelength. However, such tight control becomes difficult for switching signals through the cross connects 38 between different rings 28. A packet switched system typically then requires that the cross connects 38 interrogate the frame header and switch only those frames destined to go outside of the originating ring 28. That is, the inter-ring cross-connects 38 [[39]] are advantageously based on routers. For a WDM environment, the cross-ring switching also strongly needs translation between WDM wavelengths to allow reuse of wavelengths and prevent undue constraints on routing and timing. It is also possible that the intra-ring nodes 36 are based on routers which extract from the ring 28 only those frames destined for the associated terminal 34. Further, the terminals 34 (or terminals 12 of FIG. 1) may represent an interface to a local network, such as an Ethernet network, in which only some of the packets need to be transferred from the local network onto the ring 28, for possible retransmission to yet other rings. Thus, the terminals 34 may additionally incorporate a router to transfer only selected ones of the packets ~~from within the local network~~ that it receives from within the local network.

Paragraph at page 9, line 25 to page 10, line 21:

The switching system of FIG. 4 is overly simplified in that it emphasizes the switching fabric and ignores the control system necessary to switch individual packets. In a more complete system 58 illustrated in FIG. 5, received signaling information related to the desired spatial switch direction of a packet is carried on an out-of-channel subcarrier signal at a control wavelength λ_C rather than in the same wavelength channels as the data at the WDM wavelengths λ_1-λ_W. This is sometimes referred to as the Data Communications Channel (DCC). The out-of-

channel signaling is distinguished over the in-channel signaling described in ~~of~~the '384 patent application. For an implementation based on subcarrier multiplexing (SCM), each of the WDM headers for a fiber 42 are impressed on the single optical control wavelength λ_C by modulating the control optical carrier at λ_C by multiple RF signals at RF frequencies f_1-f_W each identified with respective WDM channels. Other RF allocations are possible. The subcarrier modulation may be accomplished by mixing a 155~~Mbs~~Mb/s digital header signal with a 14GHz local oscillator. The mixed signal controls an electro-optical modulator at the output of a laser. RF subcarriers spaced at 500MHz support ~~supports~~ 200~~Mbs~~Mb/s signaling per WDM channel. Subcarrier frequencies are spaced by fixing the controlled local oscillator (LO) frequencies, and then the multiple subcarrier signals containing multiple header information on multiple wavelength are electrically multiplexed before modulating a CW laser output. Other LO frequencies from 5 to 50GHz are easily achievable to enable 200 to 500MHz subcarrier spacing. ~~[HOW ARE SUBCARRIERS SPACED? OFFSET LO FREQUENCIES AND THEN COMBINE MIXED SIGNALS?? PRECEDING PARAGRAPH ON PAGE 36 OF PROPOSAL SAYS 10Gbs HEADER SIGNAL]~~ Since each RF subcarrier carries relatively little information content, for example, a 50 bit header, a subcarrier bit rate of about 155Mb/s may be sufficient to achieve ~~achieving~~ low latency in the switch as limited by the reading of the header content. All RF signals simultaneously modulate the optical carrier at the control wavelength λ_C. That is, an RF subcarrier f_i on an optical carrier at λ_C provides out-of-band header signaling information for WDM data carried on the optical λ_i carrier, there being a one-to-one correspondence between RF f_i and optical λ_i. As a result, the header 20 of FIG. 2 is separated from the data payload 22, removed from the WDM in-band carriers λ_1-λ_W, and moved to the out-of-channel wavelength λ_C. That is, the header and payload are frequency multiplexed, not time multiplexed as implied in FIG. 2.